

Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 179

Country: Cook Islands

Part 1: Recent climate

TABLE 1: Monthly Rainfall

Station (include data period)	May-2022	Jun-2022	Jul-2022				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Penrhyn (1937-2022)	173.9	252.2	42.0	78.2	138.1	112.0	14/86
Rarotonga (1899-2022)	213.4	64.2	34.5	58.0	108.0	88.5	19/124

TABLE 2: Three-month Total Rainfall for May to July 2022

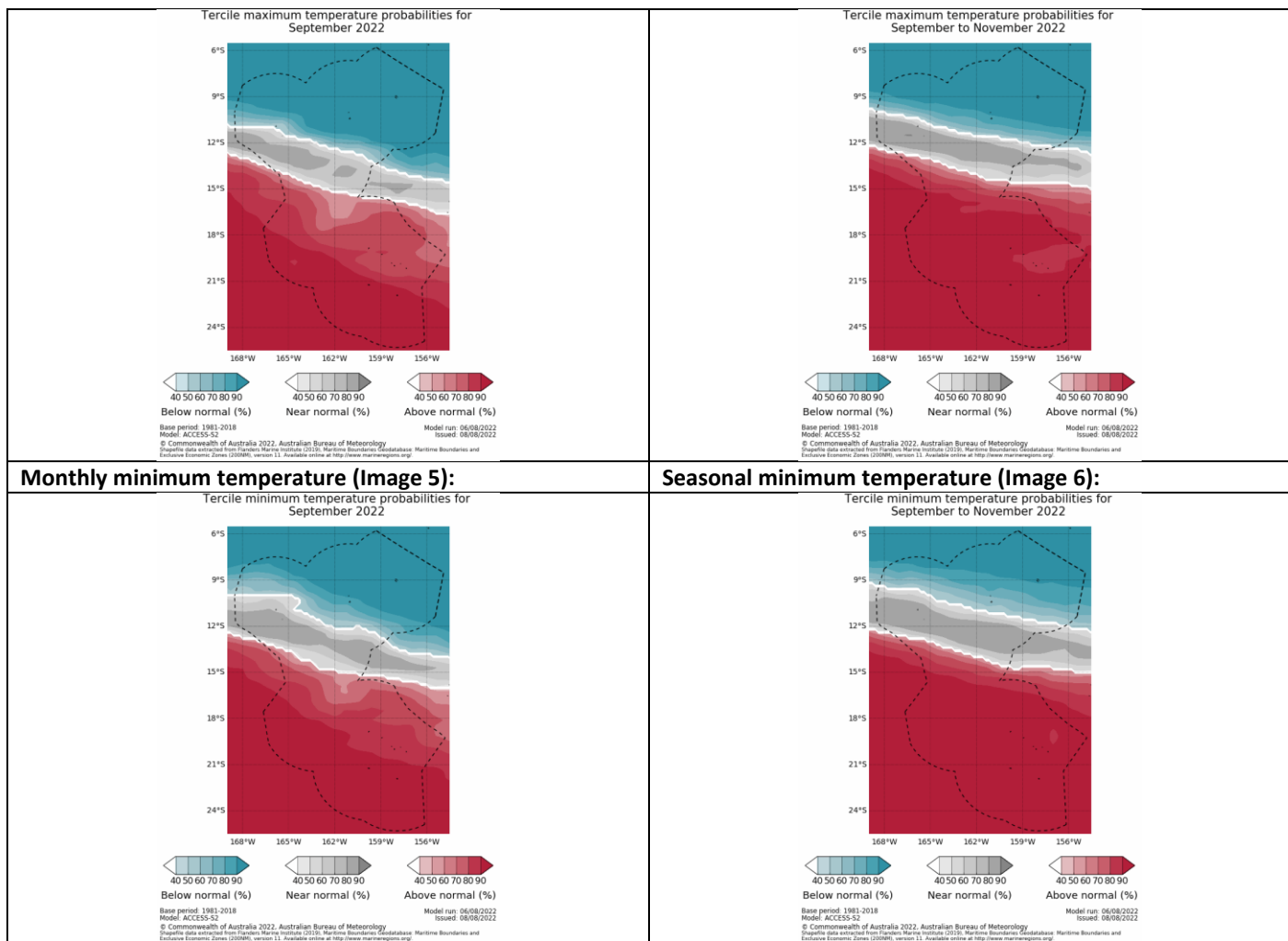
Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
Penrhyn (1937-2022)	468.1	Normal	284.9	482.3	349.8	55/83
Rarotonga (1899-2022)	312.1	Normal	303.0	394.0	341.0	51/124

Part 1i. Monthly and Seasonal Outlooks for September and September to November 2022

Monthly: September	Seasonal: September to November
Rainfall (Image 1)	Rainfall (Image 2)
<p>Tercile rainfall probabilities for September 2022</p> <p>Base period: 1981-2018 Model: ACCESS-2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Quasigeostrophic data extracted from Tropical Rainfall Measuring Mission (TRMM) 3B42v7, Maritime Boundary Database, Maritime Boundaries and Exclusive Economic Zones (2006), version 1.1. Available online at http://www.bom.gov.au/metadata/</p>	<p>Tercile rainfall probabilities for September to November 2022</p> <p>Base period: 1981-2018 Model: ACCESS-2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Quasigeostrophic data extracted from Tropical Rainfall Measuring Mission (TRMM) 3B42v7, Maritime Boundary Database, Maritime Boundaries and Exclusive Economic Zones (2006), version 1.1. Available online at http://www.bom.gov.au/metadata/</p>
Monthly Maximum temperature (Image 3):	Seasonal maximum temperature (Image 4):

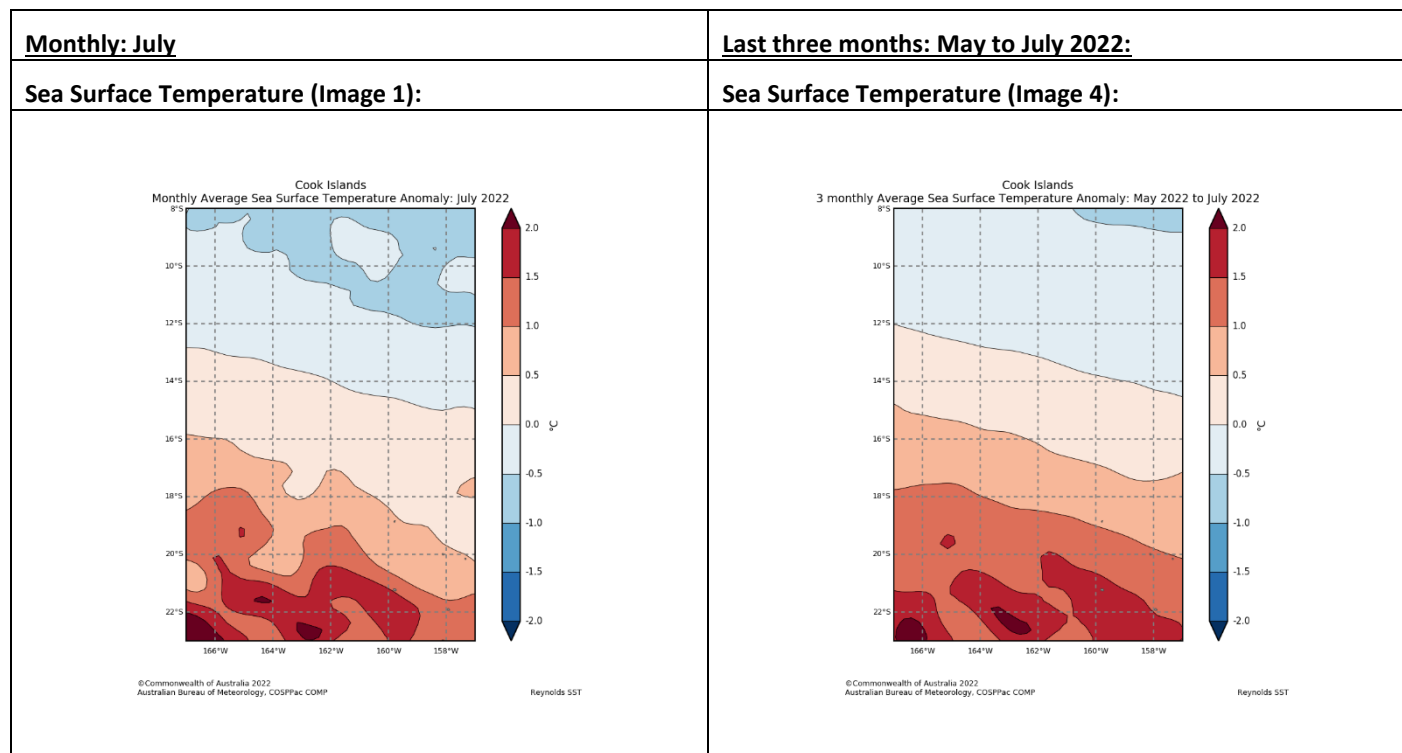
NB: The X LEPS % score has been categorised as follows:

Very Low: $X < 0.0$ Low: $0 \leq X < 5$ Moderate $5 \leq X < 10$ Good: $10 \leq X < 15$ High: $15 \leq X < 25$ Very High: $25 \leq X < 35$ Exceptional: $X \geq 35$



Part 2: Recent Ocean Observation

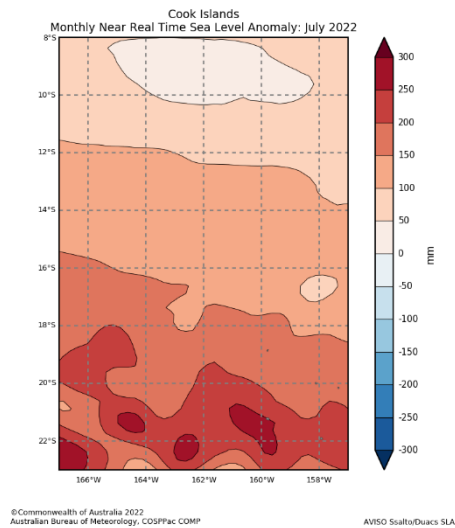
Monthly: July 2022



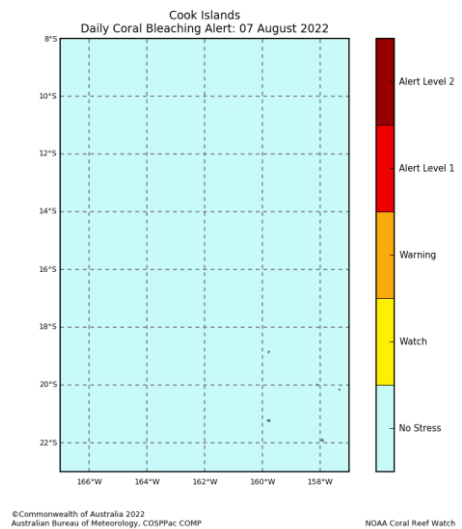
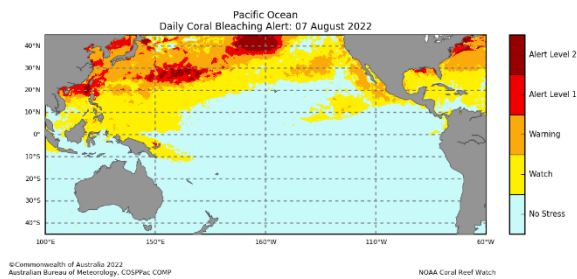
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Sea level (Image 2):



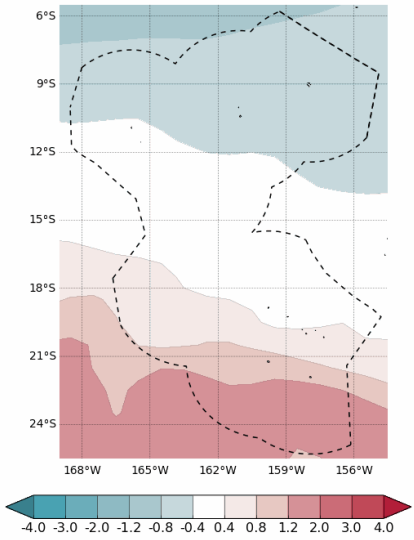
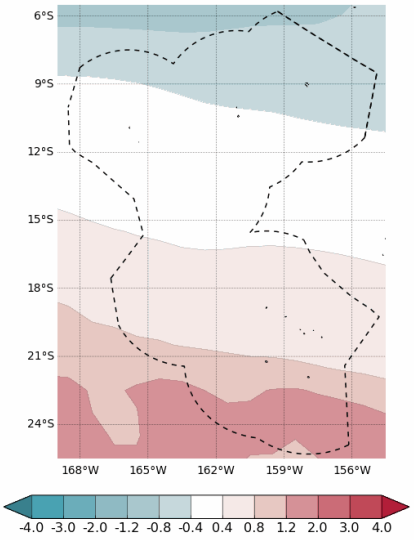
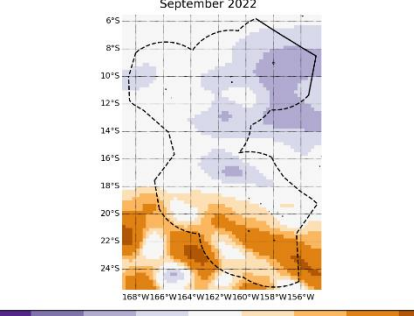
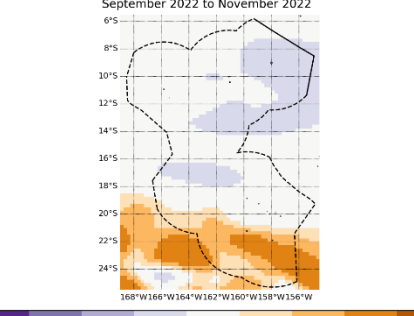
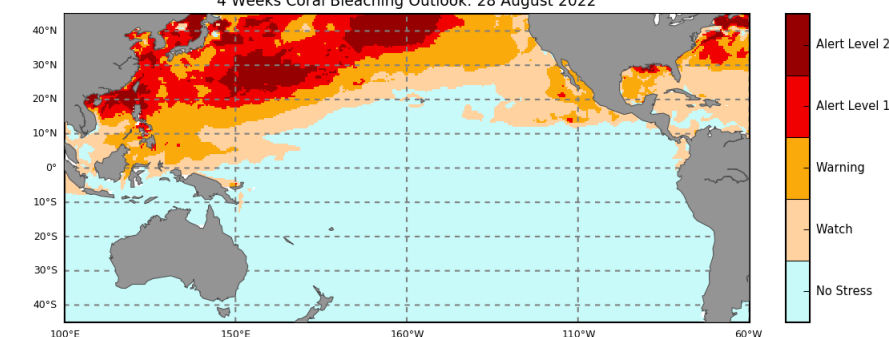
Daily coral bleaching alert (Image 3):



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Part 2i. Monthly and Seasonal Outlooks for September and September to November 2022

Monthly: September	Seasonal: September to November
Monthly sea surface temperature (Image 5):	Seasonal sea surface temperature (Image 6):
<p>Difference from average sea surface temperature forecast for September 2022</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Shapelite data extracted from Flanders Marine Institute (2019). Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 1.1. Available online at http://www.maritimerregions.org/</p> <p>Model run: 13/08/2022 Issued: 15/08/2022</p>	<p>Difference from average sea surface temperature forecast for September to November 2022</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Shapelite data extracted from Flanders Marine Institute (2019). Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 1.1. Available online at http://www.maritimerregions.org/</p> <p>Model run: 13/08/2022 Issued: 15/08/2022</p>
Monthly sea level (Image 7):	Seasonal sea level (Image 8):
<p>Difference from average sea surface height forecast for September 2022</p>  <p>© Commonwealth of Australia 2022 Bureau of Meteorology</p> <p>Model: ACCESS-S2 Base Period: 1981-2018</p> <p>Model Run: 28/07/2022 Issued: 03/08/2022</p>	<p>Difference from average sea surface height forecast for September 2022 to November 2022</p>  <p>© Commonwealth of Australia 2022 Bureau of Meteorology</p> <p>Model: ACCESS-S2 Base Period: 1981-2018</p> <p>Model Run: 28/07/2022 Issued: 03/08/2022</p>
4-week Coral Bleaching (Image 9):	
<p>Pacific Ocean 4 Weeks Coral Bleaching Outlook: 28 August 2022</p>  <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPPac COMP</p> <p>NOAA Coral Reef Watch</p>	

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Exceptional: $X \geq 35$

Summary Statement

Monthly and last three months: July 2022/May to July 2022 statement (Highly significant changes)

Below normal rainfall was recorded at both Penrhyn and Rarotonga stations for July 2022, but the 3-month (May-July) rainfall accumulation was normal for both stations.

Part 1i. Monthly and Seasonal Outlooks for September and September to November 2022

Monthly /Seasonal rainfall and temperature Outlook statements (Highly significant changes)

September rainfall is favoured to be below normal for both Penrhyn and Rarotonga. For the next 3-months (Sept-Nov 2022) below normal is favoured for Penrhyn, while above normal is the most likely outcome at Rarotonga.

The temperature outlook patterns are very similar for next month and next 3 months. They show below normal is very likely over most of the northern Cook Islands, including Penrhyn, while above normal is favoured across all the Southern Cooks, including Rarotonga.

Part 2: Recent Ocean summary statement

Monthly and last three months: July/May to July 2022 (Highly significant changes)

Sea Surface Temperature statement

Penrhyn experienced below normal SST while most of the Cooks experienced above average SST for July 2022. Significant above normal SST anomalies located in southern Cooks ranging from 1.0 to above 2.0 degrees for July.

Sea level statement

Above normal for all Cooks waters in July 2022. Significant sea level anomalies located in southern Cooks with differences of 150 to 300mm.

Daily bleaching alert statement

'No stress' coral bleaching alert status was seen for all of Cooks.

Last three months Sea Surface Temperature statement

For May to July 2022 period, warmer than average SSTs were experienced for central and the Southern Cooks. Significant above normal SST anomalies located in southern Cooks ranging from 1.0 to above 2.0 degrees. Far north of Northern Cooks, including Penrhyn was below normal.

Part 2i. Monthly and Seasonal Outlooks for September and September to November 2022

Ocean Variable statement (Highly significant changes)

Monthly sea surface temperature statement

Monthly and seasonal outlook shows below average for Penrhyn and above average for Southern Cooks including Rarotonga with a significant temperature difference of 0.8 to 1.2°C for September 2022.

Seasonal Sea Surface Temperature statement

Seasonal outlook similar to the monthly outlook.

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Exceptional: $X \geq 35$

Monthly sea level statement

Outlooks are likely to be below average for Penrhyn and above normal for Rarotonga in September 2022.

Seasonal sea level statement

Similar to monthly outlook.

Coral bleaching outlook statement

‘No Stress’ coral bleaching outlook for all of Cooks for the next four weeks.

TABLE 3: Stakeholder Engagement- Evaluations of how effective NMS engage with stakeholders

Product	Date: July 2022	Stakeholder	Total Number of Participants	Number of male	Number of female
Climate Bulletin		MoT (Ministry of Transport)	29	17	12
EAR Watch		C.I Govt. Stakeholders and Public	?	?	?
Monthly Climate Briefing		Climate Change	8	2	6
Ocean Outlook					
Climate data request		MMR (Ministry of Marine Resources)	1		1
Total			38	19	19

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